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EXAMINER

POE, MICHAEL I

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/924,453	Applicant(s) SUZUKI, MINORU	
	Examiner Michael I Poe	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Amendments

1. Applicant's amendment filed on February 4, 2004 has been entered. Based upon the entry of this amendment, existing claims 1, 3, 5 and 6 have been amended, no existing claims have been canceled, and new claims 7-12 have been added. Claims 1-12 are currently pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, the recitation "substantially smooth peripheries" in claims 1 and 7 is not literally or inherently supported by the applicant's original disclosure, and therefore is considered new matter. Although the drawings provide basis for smooth peripheries, the drawings do not provide basis for the term "substantially". Further, the applicant's original disclosure does not describe the peripheries of the stretching rollers in such a manner to support the term "substantially".

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "substantially" in claims 1 and 7 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for

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ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Specifically, one of ordinary skill in the art would not be able to determine what degree of smoothness would be necessary for the peripheries of the stretching rollers to be considered "substantially" smooth.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,496,259 (Guenther) in view of U.S. Patent No. 5,171,815 (Magill et al.).

Claims 1 and 7

Guenther teaches a process for preparing fibrous web (a method of producing a film with through-holes using a film producing apparatus) including extruding a polymer in a conventional extruder to provide a film of desired thickness and width; orienting the film by drawing it at elevated temperatures over heated rolls or drums (providing a pair of stretching rollers which sandwich a film therebetween and stretch said film in at least one direction; heating and stretching said film by means of or with said stretching rollers); feeding the oriented film, under controlled tension, between the rotating surfaces of a driven toothed roller having parallel helical rows of sawtooth-shaped teeth and a driven presser roller having helical grooves such that the rows of teeth puncture the film and enter the grooves (providing a pair of punching rollers at least one of which has projections formed on an outer surface thereof, which sandwich said film therebetween and punch through-holes in said film; punching through-holes in said film or the heated film with the punching rollers); and winding the film on a take up roll after puncturing (column 1, lines 12-23; column 1, line 62 - column 2, line 42; column 3, lines 68-75; Example 1 in column 5, line 45 - column 6, line 35). As illustrated in Figure 1, Guenther further teaches that the film is feed

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directly from the orientation means 3 to the nip between the tooth roller 11 and the presser roller 12 (said stretching rollers and said punching rollers are disposed so that said film stretched by said stretching rollers is fed to said punching rollers).

Guenther does not specifically teach that the heated rolls or drums in the orientation means having substantially smooth peripheries as claimed. However, Magill et al. teach a method for producing doubly oriented polymers including providing a pair of thermostatted rollers and a wind-up device for tensioning and drawing the film (a pair of stretching rollers which sandwich a film therebetween and stretch the film); and simultaneously compressing and drawing the film using the pair of thermostatted rollers and the wind-up device in a single pass under desired processing conditions to produce a doubly oriented polymer film (heating and stretching the film by means of or with the stretching rollers) (column 5, lines 6-26; column 6, lines 51-65). As illustrated in Figure 2, Magill et al. teach that the thermostatted rollers have substantially smooth peripheries. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use a rolltrusion stretching process in the process of Guenther as taught by Magill et al. to provide a film of good quality and improved mechanical properties such as tensile strength, tensile modulus and enhanced creep resistance (see specifically column 5, lines 6-26 of Magill et al.).

8. Claims 2, 3, 5, 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,496,259 (Guenther) in view of U.S. Patent No. 5,171,815 (Magill et al.) and Japanese Patent Publication No. 61-252353 A (Kanai).

Claims 2 and 8

The discussion of Guenther and Magill et al. as applied to claims 1 and 7 above applies herein.

Guenther in view of Magill et al. does not specifically teach that the web may comprise shape memory resin. However, Kanai teaches a non-woven sheet including resin fibers having shape memory properties (Derwent abstract of Kanai). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use resin fibers having shape memory properties to form a garment (see column 1, lines 63-66 of Sabee) by the process of Guenther in view of Magill et al. as taught by Kanai to provide a garment that is well fittable

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to the human body and that can recover its form if heated after washing (e.g., wrinkles would disappear) (see specifically Derwent abstract of Kanai).

Claims 3, 5, 9 and 11

The discussion of Guenther, Magill et al. and Kanai as applied to claims 2 and 8 above applies herein.

Although Guenther in view of Kanai teaches that the drawing temperature will depend upon the polymer used (column 2, lines 31 and 32), Guenther in view of Kanai does not specifically teach that the film is heated to a temperature above a shape providing temperature of said shape memory resin and cooling the film below the shape providing temperature of the shape member resin after heating and stretching. However, Magill et al. further teach that that solid state deformation of crystalline polymers can be carried out at any temperature ranging between the glass transition temperature and just below the melting point of the polymer (in said heating and stretching, said film is heated to a temperature above a shape providing temperature of said shape memory resin) and annealing the stretched film at a temperature below the glass transition temperature (cooling said film below a shape providing temperature of said shape memory resin, after said heating and stretching) (column 11, lines 5-12; Example 4 on column 18, lines 3-33). With regard to Example 4 in Magill et al., note that the glass transition temperature of PET is 267°C; therefore, annealing at a temperature of 180°C would represent cooling to a temperature below the glass transition temperature and the shape providing temperature. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to a rolltrusion stretching process in the process of Guenther in view of Kanai as taught by Magill et al. to provide a film of good quality and improved mechanical properties such as tensile strength, tensile modulus and enhanced creep resistance (see specifically column 5, lines 6-26 of Magill et al.).

9. Claims 4, 6, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,496,259 (Guenther) in view of U.S. Patent No. 5,171,815 (Magill et al.) and Japanese Patent Publication No. 61-252353 A (Kanai) and U.S. Patent No. 4,276,336 (Sabee) when taken in view of U.S. Patent No. 5,154,935 (Hayashi).

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Claims 4, 6, 10 and 12

The discussion of Guenther, Magill et al. and Kanai as applied to claims 2 and 8 above applies herein.

Although Guenther in view of Magill et al. and Kanai teach punching through-holes in a shape memory film, Guenther in view of Magill et al. and Kanai does not specifically teach heating the film during punching. However, Sabee teaches a method of making a multi-apertured web (film with through-holes) with incremental orientation in one or more directions including feeding a web 10 through one pair of stretch rolls 20 (stretching said film by means of or with said stretching rollers) and then aperture or depression forming rolls 32, 34 (punching through-holes in said film with the punching rollers) (column 1, lines 28-32; column 3, lines 7-13; Figure 3). Sabee further teaches heating the aperture or depression forming rollers (in said punching, said film is heated to a temperature) (see column 2, lines 62-68). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to heat the tooth and presser rollers in the process of Guenther in view of Magill et al. and Kanai as taught by Sabee to provide more efficient and more accurate puncturing by softening the film during puncturing thereby providing a higher quality film.

Although Guenther in view of Magill et al. and Kanai and Sabee does teach heating the tooth and presser rollers; Guenther in view of Magill et al. and Kanai and Sabee does not specifically teach the film is heated above a glass transition temperature of the shape memory resin and below a shape providing temperature of the shape memory resin during punching. However, in this regard, Hayashi teaches that shape memory polymer molded articles are something that is formed by imparting deformation (e.g., stretching or punching) at a temperature (a shape providing temperature of said shape memory resin) not higher than the molding temperature and above the glass transition temperature (a glass transition temperature of said shape memory resin is below a shape providing temperature) and cooling after deformation below the glass transition temperature for fixing the deformation (column 1, lines 21-32). As such, according to the teachings of Hayashi, the web in the process of Guenther in view of Magill et al. and Kanai and Sabee must obviously be heated above the glass transition temperature before any deformation step and must obviously be cooled below the glass transition temperature after any

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deformation step to achieve the shape memory properties taught by Kanai in the process of Guenther in view of Magill et al. and Kanai and Sabee. Further, according to the teachings of Hayashi, in order for the deformation achieved by the stretching step to be maintained during the punching step, the punching step must be performed at a temperature above the glass transition temperature but below the temperature of the stretching step to achieve the shape memory properties (e.g., a temperature above a glass transition temperature but below said shape providing temperature of said shape memory resin). Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use the claimed temperature relationships in the process of Guenther in view of Magill et al. and Kanai and Sabee, when taken in view of the teachings of Hayashi, to assure that the benefits of using the shape memory material taught by Kanai were achieved in the process of Guenther in view of Magill et al. and Kanai and Sabee.

Response to Arguments

10. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 3,398,224 (Spencer), U.S. Patent No. 3,884,748 (Andersen et al.), U.S. Patent No. 4,345,001 (Bijen), U.S. Patent No. 5,009,827 (Abu-Isa et al.) and U.S. Patent No. 6,372,172 B1 (Sudduth et al.) have been cited of interest to show the state of the art at the time the invention was made.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

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shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael I Poe whose telephone number is (571) 272-1207. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael Poe/mip



MICHAEL COLAIANNI
PRIMARY EXAMINER